

CACTUS: A Science and a Hobby

By NORMAN H. BOKE

IT HAS BEEN said that to many people who live in the United States, the term "cactus" means simply a flat-jointed prickly pear. Those who live in the Southwest where other types occur will be aware that such a concept is somewhat limited. However, even the Southwesterner would be very much surprised if he were able to see representative specimens of the many different kinds which are known to science.

I was reared on a ranch in western South Dakota, so I have known cacti for a long time. Although there are only four species in that region, two of them are extremely abundant, and they have a way of forcing themselves upon the attention of boys who like to explore the out-of-doors. Now that my own researches involve the study of plant structure and development, the cacti are proving to be a very fertile subject for investigations in this field of pure science. The main objective of such investigations is to secure information which will lead to a better understanding of interrelationships within the cactus family and hence enable us to trace lines of evolution. This in turn may be expected to lead to a better system of classification and to a more satisfactory delimitation of species and genera, the goal of all systematic botany.

The cacti constitute one of the best defined of all plant families, because their relationships to other flowering plants are in all cases remote. Yet despite great differences in size and form, all cacti appear to be very closely related, for they may be inter-grafted to a perfectly amazing degree. In Honolulu I once saw a large prickly pear upon which had been grafted about two dozen very different kinds of cacti. What is more, the remarkable regenerative powers of these plants make grafting an extremely simple process. It is only necessary to bring stock and scion into contact and hold them there with rubber bands.

Few plant families can boast such diversification of size and form as occurs among the cacti. There are broad-leaved, freely-branching trees, vines, and shrubs. There are branched, unbranched, and vine-like succulents. Mature plants may weigh

only a fraction of an ounce, or they may weigh many tons. Certain groups of cacti live as epiphytes in tropical forests after the manner of some orchids and the well-known spanish moss growing on other plants but getting food from the air. There are, however, no annual cacti and no aquatics.

The bizarre forms and superbly beautiful flowers of the cacti have attracted plant enthusiasts throughout the world. The interest stimulated by them has resulted in the organization of cactus societies and the publication of periodicals both in the United States and in many European countries. It has also been the basis of a small industry, particularly in Southern California, where cacti are grown for the commercial market and shipped to many parts of the world. The products of this industry may be purchased directly from the growers or in any number of stores which deal in living plants. Then too, many people find healthful recreation exploring the desert for new plants to augment their private collections.

The principal economic value of the cacti lies in their ornamental appeal. They add greatly to the charm of Southwestern landscapes. Arizona has recognized this fact and has given legal protection to her cactus flora. On the other hand, many forms produce edible fruits of excellent quality. Although one occasionally finds a few prickly pears on the market, cactus fruits have never become popular within the United States. The situation is quite different in Mexico, where a considerable variety may be purchased in season. During periods of drought, joints of some of the larger prickly pears may be used as stock feed, although it is first necessary to burn off the spines. This was done in southern Texas during the 1930s. Wood from certain arborescent cacti is occasionally used in the construction of ornamental and rustic furniture. One cactus, known as peyote, contains a narcotic which has gained some notoriety because it is used in Indian ceremonials. The uses of peyote have been studied by anthropologists and

sociologists, all of whom agree that it presents no serious menace to American civilization.

THE CONSIDERABLE volume of literature which has been published on the cactus family deals mostly with taxonomy and culture. Other fields of investigation such as anatomy, developmental morphology, physiology, and ecology have received little attention. The important four-volume taxonomic work entitled *The Cactaceae* was completed by Britton and Rose in 1923. Since that time, much of the systematic investigation has continued in Europe where cacti are not native and where they are difficult to grow. As a consequence, European botanists have described many new genera and species on very doubtful grounds, often on the basis of one or two plants. The result has been chaotic and, in a family where generic and specific limits are uncertain at best, the situation can be rectified only by extensive field studies and by considering all possible characters. European botanists have neglected anatomical information because its acquisition usually demands the destruction of a valuable specimen. Clearly, the New World is the logical place for continued studies on the Cactaceae.

At this point it will be helpful to point out some of the ways by means of which cacti may be distinguished from other plants. To some readers this may appear to be superfluous information, but the fact remains that cactoid forms and spines are found among many other kinds of plants. Many African members of the euphorbia family (Euphorbiaceae) to which our Christmas poinsettia belongs resemble certain cacti. Their flowers, however, are small, inconspicuous, and very different in construction. Moreover, euphorbia spines are stipules and therefore always occur in pairs. Certain African species of the milkweed family (Asclepiadaceae) are popular as greenhouse succulents and they, too, are frequently mistaken for cacti. When these plants are blooming, however, there should be no confusion because the flowers are

star-shaped, and usually foul-smelling. They are carrion flowers which have the color and odor of decaying flesh. It might also be pointed out that the yuccas or spanish bayonets and the joshua tree are members of the lily family (Liliaceae), and the century plants, or agaves, are members of the amaryllis family (Amaryllidaceae).

Two other families are notable for the large number of succulent plants they contain. The stone-crop family (Crassulaceae) is allied to the roses and includes many popular thick-leaved, rosette-forming plants such as *Sedum* and *Echeveria*. In this family the genera *Bryophyllum* and *Kalanchoe* are noteworthy for their ability to produce plantlets from the margins of their leaves. The African representatives of the family Aizoaceae are popular garden succulents in California. Some species of *Mesembryanthemum* have showy pink or scarlet flowers and one species has been long under cultivation by American housewives under the name of "ice plant." Plants in both of these families have conspicuous and fleshy leaves.

Now that we have shown what the cactus is not, we can proceed to define what it is. Cactus flowers are usually, but not always, large and showy. The ovary, or seed bearing cavity, is sunken into the end of a joint. Therefore, the exterior of the fruit often bears leaves, spines, scales, or combinations of all three. In the chain-fruit cholla of southern Arizona, a fruit will bear flowers which form other fruits, and the process continues until the fruits actually hang in chains. These external adornments of the fruit, so conspicuous in the prickly pears and chollas, are lost in some of the higher cacti. The perianth consists of many segments which are not sharply differentiated into sepals and petals, as they are in a rose. The stamens are numerous, often in the hundreds, and they develop from the center of the flower toward the outside. This is just the reverse of the situation found in most common flowers.

VEGETATIVE characteristics which distinguish the family are a tendency toward succulence, restriction of branching, and the reduction or complete loss of leaves. The normal functions of leaves are thus taken over by the stems and these in turn may become flattened so that they superficially resemble leaves. The flattened joints of our common prickly pears are a case in point. That they are not leaves is shown by the fact that they bear flowers, branches, and fruits. This is something which ordinary leaves never do. Cacti are likewise noted for their heavy armament of spines, and it is true that the majority of

them are spiny. On the other hand, quite a few cacti have no visible spines whatsoever. In most cases it appears that such forms produce embryonic spines which may be observed with a microscope, but the spines do not continue development until they are obvious to the naked eye. Then too, seedlings of spineless forms usually bear a few spines even when the adults do not.

The outstanding vegetative characteristic of the family, however, is the areole. To the naked eye this appears to be simply a cluster of spines. In reality, it is an axillary bud which bears spines instead of leaves or bud scales. The spines, then, are foliar organs and bear the same relation to leaves as the wing of a bird bears to the arm of a man. The areole also has an embryonic region or growing point which may under appropriate conditions produce a branch or a flower. Buds of ordinary plants behave in the same manner. Cactus areoles are situated on a structure which may be called the leaf base. This organ may be seen on many common trees such as peach and cherry as an outgrowth from the stem just beneath the axillary bud and the leaf scar, which marks the position of the leaf after it has abscised in the fall.

In many cacti the leaf base has been enlarged at the expense of the leaf itself. In plants like the saguaro, leaf bases which lie on vertical lines, one above the other, grow outwardly and form the conspicuous ribs. In other plants such as our own pin-cushion cacti (*Coryphantha* and *Mammillaria*), the leaf bases enlarge independently and form tubercles instead of ribs. In such plants, the presence of areoles at the summits of the tubercles indicates that they are not true leaves, but organs of a different morphological order. In some Mexican cacti, the tubercles become even more leaf-like so that the plants resemble miniature agaves. This is true of genera such as *Leuchtenbergia* and *Obregonia* and of species such as *Ariocarpus trigonus* and *Ariocarpus retusus*.

With the exception of a single genus, the cactus family is endemic to the New World. The aberrant genus is *Rhipsalis*, sometimes known as coral cactus. It is a tropical epiphyte and is found in Africa and Ceylon as well as in South America and the West Indies. The genus has its center of distribution in Brazil and botanists have a difficult time explaining its presence in the Old World. Coral cacti have small berries which are eaten by birds and birds may have been responsible for carrying seeds from the hump of Brazil to Africa and thence to Ceylon.

Within the New World, cacti are native from Patagonia in South America to the

ABOUT THE AUTHOR

Ever since Dr. Norman Boke, Associate Professor of Plant Sciences, joined the department in 1945, he has established himself as an outstanding teacher and as most active in research. He has contributed many scholarly papers to the American Journal of Botany and other learned publications. As a Guggenheim Fellow he spent about four months of 1953 in Cuba and the remainder of his year at the University of California. He received, also, in 1955 a grant from the National Research Council. This paper shows that the study of cacti can be both a vocation and a delight.

Peace River in western Canada. They are also found in the Galapagos Islands off Ecuador and in the West Indies. However, they are not native to the Hawaiian Islands, although some have escaped cultivation and become established in that region. There are three great centers of distribution, or areas in which a maximum variety of forms occurs; one is in northwest Argentina and adjacent portions of Bolivia and Paraguay; a second is on the northeast coast of South America and includes adjacent Caribbean Islands; and the third is in Central Mexico. In the United States the family is represented by at least one species in every state except Maine, New Hampshire, and Vermont. Over half of the states have but a single species, and that is always a flat-jointed prickly pear. The common prickly pear (*Opuntia vulgaris*) may be found in sandy localities along the East Coast as far north as Cape Cod. In the central plains another species (*Opuntia polyacantha*) occurs from Texas and Arizona to Central Alberta and British Columbia. This polymorphic species has the widest distribution of any known cactus. When one considers how far up the central plains cacti may occur, it is strange that they are absent from the Pacific Coast north of the latitude of San Luis Obispo. This is surprising until one remembers that rainfall in this area comes during the cool season when cactus roots are inactive. If the San Joaquin and Sacramento Valleys received a small amount of summer rainfall, one might expect them to be inhabited by an extensive cactus flora.

ALTHOUGH the number of valid species and genera of cacti is uncertain and will undoubtedly be changed as the family becomes better known, it will be useful to present a few conservative statistics. There

are about 150 genera and approximately 1,500 species. Of the latter, 540 are native to South America, 500 to Mexico, some 200 to the United States, and the others in islands of the Caribbean. The largest genus is *Opuntia*, which includes the prickly pears and chollas, with about 260 species, 90 of which occur in the United States. The second largest genus is *Mammillaria* with about 150 species, but only 17 in the United States. Arizona has the best developed cactus flora because many of the native types are large plants, but there are only 70 species. Texas, on the other hand, has about 100 species, many of which are small and inconspicuous. New Mexico can claim 65 species, and California and Oklahoma about 30 each. Florida has about 27, some of which are arborescent. The cacti of Florida are interesting to the botanist because the species are in many cases identical with those of the Caribbean region and in other cases closely related to them. This would indicate that they invaded Florida long ago from South America by way of the West Indies. It is also evident that the cacti of the western U. S. have spread northward from Mexico.

The principal groups into which the cactus family has been divided are readily distinguished even by the amateur. There are only three tribes one of which has been further divided into eight sub-tribes.

Most primitive of all cacti are the pereskias (*Tribe Pereskiaecae*) which have persistent broad leaves and bear flowers in clusters. They are native to tropical America and in the United States are usually seen only in greenhouses. The flowers may be red, pink, white, or yellow depending upon the species and are about the size of a wild rose which, in some cases, they resemble. Pereskias may be vines, shrubs, or large trees. Trunks and branches of old plants are often heavily armed with spines which makes them readily distinguishable from other tropical trees and shrubs. Moreover, the spines are not dispersed at random, but are located on persistent areoles. The genus *Maihuenia* from South America is sometimes placed in this tribe because it has persistent leaves and no glochids, although the leaves are cylindrical or awl-shaped. Otherwise the tribe contains only the genus *Pereskia*. Most Pereskias may be propagated readily from cuttings and they will flower freely even when small.

The prickly pear and cholla tribe (*Opuntiacae*) contains the most familiar of all cacti. Its members usually have succulent awl-shaped leaves which fall off early in the first season of growth. Two somewhat aberrant forms have broad leaves, but they

are very thick and not persistent (*Quibentia*, *Peresklopsis*). The tribe is also noted for its barbed spines and for the production of numerous, small, deciduous spines which are called glochids, or spicules. Glochids, too, are barbed and often inconspicuous, but they provide an excellent reason for being careful when handling prickly pears and other members of the tribe. Spines of the North American chollas are covered with a papery sheath which is easily pulled off. There are eight genera in the tribe, but the flat-jointed prickly pears and the cylindrical-jointed chollas (both in the genus *Opuntia*) are the most numerous and the best known. The flowers are large, wheel-shaped, and often strikingly colored. The fruits may be fleshy and edible, or dry and inedible, but they usually bear leaves and areoles with spines. Some of the Arizona chollas become small trees and there is a prickly pear in eastern Cuba which forms a rather large tree. About half of all Oklahoma species belong to this tribe.

MANY MEMBERS of the cereus tribe (*Cereaceae*) have leaves so small that the average person is rarely aware of them. The stem usually bears ribs or tubercles and the flowers have a floral tube which is sometimes very long. The areoles have no glochids and the spines are not barbed. This group is so large that it is divided into sub-tribes for convenience.

The giant cereus group (*Cereanae*) contains several-jointed to many-jointed cacti. The joints are usually rather long and the plants take the form of erect trees and shrubs. Sometimes they have an arching growth habit and one, the creeping devil cactus of Lower California, lies prostrate on the ground. In this group belong the giant saguaro and the organ pipe cactus of Arizona. A recent work lists forty-four genera, one of which is *Peniocereus*, the night-blooming cereus of the American Southwest. This plant has a very large underground tuber which produces slender, inconspicuous, and shrubby shoots. The flowers appear only at night and are large, white, and very fragrant. The plant grows only under bushes and is very difficult to find unless it is in bloom. It might be well to point out here that the term "night-blooming cereus" has no specific meaning because the tribe contains many night-blooming forms, a number of which are under cultivation. Flowers in the group are often large and beautiful and may be white or colored. Edible fruits of high quality are produced by some forms. The most massive of all cacti belong here. Actually, it is not easy to say which species holds

a record for size. It is known, however, that individuals of the Mexican genus *Pachycereus* and the Cuban genus *Dendrocereus* have greater bulk than the Arizona saguaro.

The climbing cereus group (*Hylocereanae*) contains only nine genera. The plants have long slender joints with aerial roots and they clamber over rocks or climb in trees. All forms are tropical and many are night-flowering. The largest of all cactus flowers are to be found among the climbing cerei. The Central American *Hylocereus undatus* has flowers over a foot long and about the same width. The very long floral tube is a conspicuous feature of most genera. *Hylocereus undatus* is the plant used in the famous night-blooming cereus hedge which surrounds Punahou School in Honolulu.

There is no sharp dividing line between the larger cerei and the six genera which belong to the hedgehog cactus group (*Echinocereanae*). The hedgehog cacti are in general rather small with single or clumped, short joints. The flowers are showy and appear at old areoles on the sides of the plants. Only one genus, *Echinocereus*, occurs in North America, but it is widespread throughout the Southwest and Mexico. Oklahoma has five or six species which may best be observed in the Arbuckle Mountains, in the Wichita Mountains, and on the gypsum ridge in Jackson County. Because they are small enough to be conveniently grown in pots, members of the hedgehog group are popular among cactus enthusiasts. The South American forms are easier to grow than are the North American Echinocerei and so they are frequently found in homes and are grown and sold in considerable quantities by nurseries. Some species of *Lobivia* and *Rebutia* are very small plants, but they have brilliantly colored flowers. *Echinopsis* is somewhat larger and it produces large white flowers which have a very long tube. It is sometimes known as the Easter Lily Cactus.

The Echinocactanae or barrel cactus group likewise contains mostly one-jointed forms which range in size from the giant barrel cacti to the tiny button cactus (*Epithelantha*) of Western Texas and New Mexico. The flowers are usually not so large as in the previous group and they appear at the top of the plant instead of at the side. Some genera have conspicuous ribs like the barrel cactus, but many others have tubercles. The group shows a tremendous amount of variation and contains some of the weirdest of all cacti. In tubercled types, the flowers appear at the tops

Continued page 29

valor, to which perhaps more than lip-service was paid at court, are thus idealized in Lovel's speeches and brutalized, amusingly enough, in the words and actions of Sir Glorious and his comrades.

We must now consider the significance of the inn itself, the stage on which these dramas are enacted. At the very beginning of the play the host gives us a clue when he tells us that the inn is called The Light Heart. And then, in Act I, scene 3, explaining to the melancholy Lovel why a gentleman keeps an inn, he speaks as follows:

If I be honest, and that all the cheat
Be of myself, in keeping this Light
Heart,
Where I imagine all the world's a play,
The state and men's affairs all passages
Of life, to spring new scenes, come in,
go out,
And shift and vanish; and if I have got
A seat, to sit at ease here i' mine inn,
To see the comedy, and laugh and chuck
At the variety and throng of humors
And dispositions that come justling in
And out still, as they one drove hence
another,
Why will you envy me my happiness?

The inn, then, is a theatre, and the play therein enacted is nothing less than the world, than life itself. The idea of the theatre as a stage, and the drama as life, was a commonplace among Elizabethan and Jacobean playwrights and is, in fact, as old as Cicero. Thomas Heywood argues in his *Apology for Actors* that the drama represents a panorama of life and that from observing the drama one may make certain conclusions about his own life as well, and this idea is implicit in almost innumerable metaphoric statements of the drama as life. It is clear, then, that if the inn in Jonson's play is a stage, this stage may be reasonably assumed to be, metaphorically, the world, life, so that in the inn is enacted a comedy which offers moral commentary, in symbolic terms, on some aspect of life. Through observing the flow of life in and out of the inn, Lord Frampul, alias the host, and Lady Frances Frampul, his daughter, lose their peevish affectations. Lord Frampul's wife, née Syilly, posing as the old nurse, loses, alas, her silliness, and Frank, the host's son, posing as Mistress Letitia Syilly, but being really Mistress Letitia Frampul, becomes Lady Beaufort. Lovel is retrieved from his desperate melancholy, and Pru the chambermaid, playing the rôle of sovereign of the festivities in the inn, is indeed a sovereign, as she displays her tact, discretion, humor, and good sense, and becomes Lady Latimer. Sir Glorious Tiptoe and his comrades, and Nick Stuff and his charming wife

Pinnacia also play their rôles, in that the absurdity of their words and actions provide, consistent with the Aristotelian precept, that version of the ludicrous which is a subject of laughter, and which, as Dennis was to say later, ought never to be imitated in life. They are observed by the other characters in the play and provide, in comic terms, moral instruction, as they do also for the *other* audience, in the theatre.

All of this is, in fact, not unlike what happens in *The Tempest*; we have a play the action of which is symbolic; we have the theme of reconciliation; we have characters undergoing metamorphoses as a result of their experiences or observations; we have "low" characters who provide both laughter and moral instruction; and we have a particular locale which serves metaphorically as a stage representing the world. In Shakespeare's play we have his best verse, technically, his crowning achievement; in Jonson's play we have not his best verse, but at least a verse remarkably appropriate to his theme, a verse at once fluid and musical, inferior to Shakespeare's, it must be said, but much more than merely serviceable. Still, though, Shakespeare and Jonson are doing different things. Shakespeare, setting his scene on the enchanted island, peopling it with vaguely supernatural characters, and decorating it with magic, is closer to traditional ideas of pastoral, and, by establishing with every means at his disposal an aesthetic distance between the "real" world and the world of the play, makes it much easier to perceive the symbolic nature of his play. Jonson had no affection for magic islands as scenes for comedy (the masque was another matter), and chose the familiar, rather than the strange, an inn near London rather than a non-existent magic island, a host rather than a Prospero, a charming Pru rather than a celestial Miranda. Parts of *The Tempest* are sheer magic; *The New Inn* is a work of great skill and intelligence. Jonson, in his entire conception, was almost certainly influenced by *The Tempest*, but, as always, he chose to write his own play in his own way. By most critical standards, Shakespeare's play is better, just as many of Jonson's own plays are better, but *The New Inn* is an excellent comedy, expertly plotted, admirably constructed, abounding in interesting and entertaining characters, with a serious purpose which yet is communicated in a comic context. When we reflect that it is no *Alchemist*, we should also reflect that *The Tempest* isn't, either.

of the tubercles instead of in the axils. Among the thirty-seven genera are the curious dumpling cactus, peyote (*Lophophora*) which produces a narcotic; the living rock (*Ariocarpus fissuratus*) of Western Texas and Mexico; the cone cactus (*Encephalocarpus*) the tubercles of which have the form of cone scales; and the agave cactus (*Leuchtenbergia*), the tubercles of which resemble the leaves of a miniature century plant. There are several species of *Astrophytum* which are commonly found in collections. One of them is the Bishop's cap cactus (*A. myriostigma*) which has no spines but has five star-like ribs and is covered with silvery scales. Of the entire group, only one species, *Homaloccephala texensis*, occurs in Oklahoma and it is reported only from Harmon County. This rather large, flat cactus has heavy spines and produces large magenta flowers about the first of May. It is locally known as the devil's pincushion.

MEMBERS OF THE turk's cap group (*Cactanae*) are found in many places in South America. A few species occur in Mexico, but the best known localities are in the West Indies. They are among the very first cacti to be brought to the Old World. They look like small to intermediate sized barrel cacti with a red or orange fez on top. The curious red cap is only the modified upper part of the stem which serves for the production of flowers and fruits. The structure is known as a cephalium and it is far more conspicuous and colorful than are the flowers and fruits. Both of the latter resemble those of the mammillarias. Although there are two genera in the sub-tribe, only one, *Melocactus*, is abundant and well-known. The plants are prized as ornamentals in tropical countries.

The mammillaria or pincushion group (*Coryphanthanae*) includes about sixteen genera of small cacti many of which are popular as house plants. The group was originally segregated from other cacti on the basis of having separate spine-bearing and flower-bearing areoles. The spine areoles crown the tubercles and the flowers appear in the axils of the tubercles. Developmental studies, however, have shown that these conditions do not hold for all genera and it is likely that the group will soon be reclassified. Oklahoma has several species each of the genera *Coryphantha* and *Neobesseyia*. The first has purplish red flowers; the second, yellowish bronze. In

both genera the flowers appear near the top of the plant and at the base of a conspicuous groove which occurs on the upper side of the tubercle. It turns out, however, that there is only one very much elongated areole on each tubercle. There is a single true *Mammillaria* which occurs in Oklahoma (*M. heyderi*) and it is known only from Jackson County. It is readily distinguished by its white flowers and the milky juice in its tubercles. The true mammillarias all have separate spine and flower-bearing areoles. Finding any members of this sub-tribe in the field requires patience and careful observation for none of them is conspicuous and they are often hidden by other vegetation.

The epiphyllum group (*Epiphyllanae*) comprises nine genera of plants most of which are tropical epiphytes. They have flat-jointed stems which resemble leaves and most of them are without spines. The flowers are often large and beautiful. The Christmas or crab-claw cactus has long been popular as a house plant. The orchid cacti are hybrids between white-flowered, night-blooming members of this group and red-flowered, day-blooming members of the genus *Heliconia*. Many horticultural varieties of orchid cacti are now on the market and their flowers rival in beauty any on earth.

The coral cacti (*Rhipsalidanae*) differ from the epiphyllums because of their very small flowers and fruits. They occur mostly as epiphytes and may be found hanging from trees or overhanging rocks in moist tropical forests. A few of them have flat-jointed stems, but others have cylindrical, pencil-like joints. Many of them lack spines and the plants therefore do not much resemble ordinary cacti. They look rather as if they ought to be in the mistletoe family. Coral cacti are most abundant in the forests of Brazil. One species, however, has been reported from Southern Florida and it is abundant in the West Indies. This is *Rhipsalis cassytha* which is possibly the only cactus native to the Old World, for it is found likewise in tropical Africa and in Ceylon.

This, then, is the cactus family, a study in variation. Exploring for its members, and growing them, has brought pleasure and healthful diversion to many plant lovers. Outside of distribution and classification, however, science still knows very little about them. Since we know relatively little, it is impossible to tell whether they may become of more economic value than they are at present. In the fields of morphology and development, physiology, and ecology, they present a nearly virgin area for investigation. Even generic and spe-

cific limits are uncertain. The logical place to conduct investigations on the family is in the American Southwest where they are abundant, not in Europe or on the East Coast of the United States. The University of Oklahoma is very favorably located in this respect. While it is not in the center of the cactus country it is readily accessible to Western Texas, Southern Arizona and New Mexico, and the extremely rich region in Central Mexico.

What Are the Russians Like? . . .

Continued from page 21

getting drunk. And in his drunkenness the peasant would moan: "I am a miserable sinner. Have mercy on me, oh Lord!" Even when not drunk the Russian is a humble man. One rarely hears him boast. One is much oftener apt to hear him voice his discontent with himself. (All this Soviet bragging that has lately nauseated the world emanates from the Kremlin, not from Russia.)

Another avenue of escape leads into the dream-world of fancy which scholars call art but which to the common man everywhere is simply the urge to create a world nearer to his heart's desire. The most universal form of art in Russia is the folk song. The Russians, as we all know, are remarkable singers and so rich is the common man's store of songs that, like the nightingale, he can sing from morn till midnight without repeating himself. The range of his songs encompasses the whole soul, from deepest sorrow to keenest joy.

You may have found that Russians often talk about their "Russian soul." I believe the "Russian soul" is but a human soul and when a Russian intellectual begins to talk of his soul I feel uneasy. I am so afraid it is merely a pose. Yet the Russian peasant, too, likes the word "soul," and there is all the warmth of the heart in his talk. The Russian is not sentimental: yet he enjoys to feel his feelings, to turn them over in his mind and to invite his neighbors to share them. He does this without ostentation, sincerely, naturally, almost naïvely. In literature, this has produced many works in which there is no "action" but only mood, where the heart is like a harp that sings in the wind. A story of Chekhov's comes to mind which only a Russian could have written: *Toska*.¹ The old coachman has lost his only son; he needs to tell people his grief but nobody will listen, at least not long enough. He finally goes to the stable and starts talking to his horse, the gentle mare. And while she is contentedly chewing her hay he tells her all. Both the humor and the pathos of the scene are genuine

and their effect becomes overpowering through their simultaneity.

These same sensitive Russians can turn around and become hard and cruel. Superficial observers have cited this as an example of a lack of balance and stability in the Russian character, or even of the "dual character" of the Russians. I cannot believe that the Russian character is any more dual than ours or anybody else's. I would rather say only that the Russian pendulum makes quite a hefty swing in both directions.

In this brief attempt at a characterization of the Russians I have made some sweeping generalizations. But there are infinite variations from type. You yourself will have to know a Russian or two, or two hundred, before you can say with some certainty: "This is Russian, this is not." And since for various reasons, including an iron curtain, few of you are likely ever to go and study the Russians in the flesh, I urge you to do the next best thing: read them! All Russia lives in the pages of her classics. Pushkin, Lermontov, Gogol, Turgenev, Dostoyevsky, Tolstoy, Gorky, Chekhov—remember these names. They are Russian writers. But they speak a universal language.

¹ The title defies the translator, at least this one, but to the Russian soul it may mean one or all of the following: grief, sadness, melancholy, anguish, agony, anxiety, distress, yearning, longing, dejection, boredom.

France: Reflections . . .

Continued from page 24

egalitarian, harmonious, and self-less community, Christian as well as socialist, classless by consent rather than force. True, the foundation of Jules Guesde's *Parti Ouvrière Français* in 1882 and more obviously the *Parti Communiste Français* in 1920 reveals a healthy, dynamic, and dangerous Marxist strain, but its significance must not be overrated. Even after the disheartening May days of 1871 when the Paris commune, both bourgeois and socialist in composition, had succumbed to the deadly volleys loosened by the forces of peace and political respectability, even then the clamor of certain socialist voices for social harmony continued.

To this effect Charles Beslay, a prominent Commune, wrote in *La Vérité sur la Commune* (1878): "The bourgeois ought to know that it is in its interest to extend a hand to the workers who ask nothing but to join them in the spirit of brotherhood." Charles Péguy, born two years after Commune blood had washed the pavements of Paris, writing when the passions engendered by the Dreyfus affair glowed red hot,